

### ABSTRACT

A membrane process for the removal of sulfur species from a naphtha feed, in particular, a FCC light cat naphtha, without a substantial loss of olefin yield is disclosed.

The process involves contacting a naphtha feed stream with a membrane having sufficient  
5 flux and selectivity to separate a sulfur deficient retentate fraction from a sulfur enriched permeate fraction, preferably, under pervaporation conditions. Sulfur deficient retentate fractions are useful directly into the gasoline pool. Sulfur-enriched permeate fractions are rich in sulfur containing aromatic and nonaromatic hydrocarbons and are further treated with conventional sulfur removal technologies, e.g. hydrotreating, to reduce sulfur content.

10 The process of the invention provides high quality naphtha products having a reduced sulfur content and a high content of olefin compounds.